CONTENTS 1990

JANUARY

1 **Spinal Metastases: The Obvious, the Occult, and the Impostors**
David A. Wong, Victor L. Fornasier, and Ian MacNab

5 **Profgressive Isoinertial Lifting Evaluation: Erratum Notice**
Tom Mayer, Robert Gatchel, Dennis Barnes, Holly Mayer, and Vert Mooney

6 **Spinal Cord Response to Laser Treatment of Injured Peripheral Nerve**
Semion Rochkind, Idit Vogler, and Liliane Barr-Nea

11 **Accuracy of Pedicular Screw Placement *In Vivo***
Stanley D. Gertzbein and Stephen E. Robbins

15 **Multiaxis Cyclic Biomechanical Testing of Harrington, Luque, and Drummond Implants**
Richard J. Nasca, Jack E. Lemons, John Walker, and Sara Batson

21 **Computed Tomographic (CT) Demonstration of Calcification of the Ligamenta Flava of the Lumbosacral Spine Associated With Protrusion of the Intervertebral Disc**
Elieser Avrahami, Irena Wigler, Dorit Stern, Dan Caspi, and Michael Yaron

24 **A Comparison of Four Computerized Methods for Measuring Vertebral Rotation**
G. G. Russell, V. J. Raso, D. Hill, and J. McIvor

28 **Low-Back Pain in Pregnancy: Abdominal Muscles, Sit-up Performance, and Back Pain**
Avital Fast, Lyn Weiss, Edmond J. Ducommun, Evelyn Medina, and John G. Butler

31 **Incidence of Lumbar Disc Surgery: A Population-Based Study in Olmsted County, Minnesota, 1950–1979**
Irene Bruske-Hohlfeld, John L. Merritt, Burton M. Onofrio, Henry H. Stonnington, Kenneth P. Offord, Erik J. Bergstralh, C. Mary Beard, L. Joseph Melton, III, and Leonard T. Kurland

36 **Lumbar Percutaneous Facet Rhizotomy**
H. Roy Silvers

41 **Briefly Noted: Surgical Management of Severe Cervical Kyphosis Following Extensive Laminectomies**
Jean-Pierre C. Farcy, Mark Weidenbaum, and Carlos Sola

45 **Briefly Noted: Guillain-Barré Syndrome Following Spinal Fusion for Adult Scoliosis**
Jeffery L. Stambough, John G. Quinlan, and James D. Swanson

46 **Briefly Noted: Scoliosis and Juvenile Rheumatoid Arthritis: A Case Report of Surgical Treatment**
Alan Moskowitz

50 **Briefly Noted: Lumbar Disc Protrusion in an Acromegalic Patient**
C. L. Cheng and S. P. Chow

52 **Briefly Noted: Symptomatic Lumbar Epidural Lipomatosis in a Normal Male: A Unique Case Report**
Drew A. Bednar, Stephen I. Esses, and Walter Kucharczyk

54 **Briefly Noted: Further Minification of the Taylor Retractor for Lumbar Surgery: Technical Note**
Nancy E. Epstein

54 **Briefly Noted: Nonoperative Treatment of Neuropathic Spinal Arthropathy**
Stanley Hoppenfeld, Michael Gross, and Charles Giangarra

57 **Meetings of Interest for Spine Physicians and Surgeons**

59 **Errata**

FEBRUARY
EUROPEAN EDITION

61 **Handedness and Scoliosis Convexity: A Reappraisal**
C. Goldberg and F. E. Dowling

65 **Zinc Status in Patients with Idiopathic Scoliosis**
M. Dastych and O. Vlach

67 **Screening for Scoliosis: A Cost-Effectiveness Analysis**
F. Montgomery, U. Persson, G. Benoni, S. Willner, and B. Lindgren

71 **End Vertebra Angle—A Roentgenographic Method to Describe a Scoliosis: A Follow-up Study of Idiopathic Scoliosis Treated with the Boston Brace**
Gert Appelgren and Stig Willner

75 **The Dwyer Procedure in the Treatment of Idiopathic Scoliosis: A 10-Year Follow-up Review of 21 Patients**
R. Kohler, O. Galland, H. Mechin, C. R. Michel, and M. Onimus

81 **An Analysis of the Effect of the Zielke Operation on the Rib Cage of S-Shaped Curves in Idiopathic Scoliosis**
A. S. Wojcik, J. K. Webb, and R. G. Burwell

87 **Three-Dimensional Analysis of Neck Motion: A Clinical Method**
Martin Ålund and Sven-Erik Larsson

92 **Correlation of Chronic Low-Back Pain Behavior and Muscle Function Examination of the Flexion–Relaxation Response**
David K. Ahern, Daniel J. Hannon, Anthony J. Goreczny, Michael J. Follick, and John R. Parziale

96 **A New Approach to the Low-Back Physical Examination: Behavioral Assessment of Mechanical Signs**
Kevin F. Spratt, Thomas R. Lehmann, James N. Weinstein, and Hutha A. Sayre

103 **Diurnal Changes in Straight Leg Raising**
R. W. Porter and I. F. Trailescu

107 **Extension–Flexion Radiographs for Motion Studies of the Lumbar Spine: A Comparison of Two Methods**
E. Putto and K. Tallroth

111 **Discs Degenerate Before Facets**
D. Butler, J. H. Trafimow, G. B. J. Andersson, T. W. McNeill, and M. S. Huckman

114 **Radiographically Detectable Degenerative Changes of the Lumbar Spine Among Concrete Reinforcement Workers and House Painters**
Hilkka Riihimäki, Tor Mattsson, Anders Zitting, Gustav Wickström, Kari Hänninen, and Pekka Waris

120 **Conservative Treatment of Acute Low-Back Pain: A Prospective Randomized Trial: McKenzie Method of Treatment Versus Patient Education in "Mini Back School"**
Radisav Stankovic and Olof Johnell

124 **Back Pain and Radiologic Changes in the Thoraco-Lumbar Spine of Athletes**
Leif Swärd, Mikael Hellstrom, Bo Jacobsson, and Lars Pëterson

130 **Relation Between Form and Function in the Sacroiliac Joint: Part I: Clinical Anatomical Aspects**
A. Vleeming, R. Stoeckart, A. C. W. Volkers, and C. J. Snijders

133 **Relation Between Form and Function in the Sacroiliac Joint: Part II: Biomechanical Aspects**
A. Vleeming, A. C. W. Volkers, C. J. Snijders, and R. Stoeckart

137 **Primary Tumors of the Axial Skeleton: Experience of the Leeds Regional Bone Tumor Registry**
Clark R. Dreghorn, Raymond J. Newman, Graham J. Hardy, and Robert A. Dickson

141 **Briefly Noted—A Case Report of Recurrent Osteoblastoma of the Rib Presenting as Painless Progressive Scoliosis**
J. K. Dowell and M. A. Edgar

142 **Briefly Noted—Progressive Sacral Nerve Root Dysfunction, a Possible Complication of Sublaminar Hooks: A Case Report**
Robert Gunzburg and Robert D. Fraser

144 **Briefly Noted—Acute Injury of the Vertebral Ring Apophysis and Intervertebral Disc in Adolescent Gymnasts**
Leif Swärd, Mikael Hellstrom, Bo Jacobsson, Rickard Nyman, and Lars Pëterson

148 **Briefly Noted—The CT Appearances of Arachnoiditis Ossificans**
T. Jaspan, B. J. Preston, R. C. Mulholland, and J. K. Webb

152 **Meetings of Interest for Spine Physicians and Surgeons**

MARCH

155 **Magnetic Transcranial Brain Stimulation: Painless Evaluation of Central Motor Pathways: Normal Values and Clinical Application in Spinal Cord Diagnostics: Upper Extremities**
Jiri Dvorak, Jorg Herdmann, and Robert Theiler

161 **Acute Spinal Cord Injury: A Study Using Physical Examination and Magnetic Resonance Imaging**
Fonda J. Bondurant, Howard B. Cotler, Madan V. Kulkarni, Craig B. McArdle, and John H. Harris, Jr

169 **Anterior Kostuik-Harrington Distraction Systems for the Treatment of Kyphotic Deformities**
John P. Kostuik

181 **The Lumbar Lordosis below Harrington Instrumentation for Scoliosis**
Susan M. Swank, Thomas M. Mauri, and John C. Brown

187 **Serum Creatine Kinase and Lactate Dehydrogenase Changes After Anterior Approaches to the Thoracic and Lumbar Spine**
Dane K. Wukich, Bruce E. Van Dam, Geoffrey M. Graeber, and Thomas Martyak

191 **Spinal Tuberculosis with Posterior Element Involvement**
Art Arthornthurasook and Adisorn Chongpieboonpatana

195 **Experimental Pullout Testing and Comparison of Variables in Transpedicular Screw Fixation: A Biomechanical Study**
R. Skinner, J. Maybee, E. Transfeldt, R. Venter, and W. Chalmers

202 **Body Height Change During Upright and Recumbent Posture**
M. H. Krag, M. C. Cohen, L. D. Haugh, and M. H. Pope

208 **Significance of Lumbosacral List and Low-Back Pain: A Controlled Radiographic Study**
George A. Arangio, Scott M. Hartzell, and James F. Reed

211 **Centralization Phenomenon: Its Usefulness in Evaluating and Treating Referred Pain**
Ronald Donelson, Gregory Silva, and Kenneth Murphy

214 **Bioengineering—The Bond between Basic Scientists, Clinicians, and Engineers: The 1989 Presidential Address**
Malcolm H. Pope

218 **Briefly Noted—A Study of the Mechanical Efficiency of Split-Table Traction**
Gary D. Goldish

220 **Briefly Noted—Fracture of the Lamina of the Sixth Cervical Vertebra with Quadriplegia: A Case Report**
Tarcisio Eloy Pessoa de Barros and Antonio Bento Furtado de Mendonça

222 **Briefly Noted—An Accurate Method for Lumbar Disc Puncture Using a Single Channel Intensifier**
O. Troisier

229 **Briefly Noted—Postsurgical Lumbar Calcified Extradural Cyst: Report of a Case**
Louis Z. Shifrin, Edward Frish, and Judith Ben-Arie

231 **Briefly Noted—Syringopleural Shunt for the Treatment of Syringomyelia: Technical Note**
Zvi Ram, Gideon Findler, Rina Tadmor, Abraham Sahar, and Itzhack Shacked

233 **Briefly Noted—Thoracic Lordoscoliosis in Marfan's Syndrome: Report of Two Patients with Surgical Correction Using Rods and Sublaminar Wires**
Robert B. Winter

236 **Briefly Noted—Congenital Pedicle Defects of the Axis Vertebra: Report of a Case**
Eric C. Hanson, James E. Shook, George J. Wiesseman, and Virchel E. Wood

238 **Briefly Noted—Spinal Cord Compression in Primary Hyperparathyroidism: Report of a Case and Review of the Literature**
Michael Daras, Theodoros Georgakopoulos, Demetrios Avdelidis, Aikaterini Gravani, and Alan J. Tuchman

240 **Briefly Noted—Osteochondroma of the Thoracic Spine: Report of a Case and Review of the Literature**
P. Roblot, M. Alcalay, F. Cazenave-Roblot, P. Levy, and D. Bontoux

244 **Briefly Noted—The Advantage of Magnetic Resonance Imaging in Diagnosis of a Lumbar Synovial Cyst**
Raphael Davis, Afif Iliya, Clemente Roque, and Mahender Pampati
246 **Briefly Noted—Talmudic and Other Ancient Concepts of the Number of Vertebrae in the Human Spine**
Robert Shapiro
247 **Briefly Noted—An Unusual Presentation of a Schmorl's Node: Report of a Case**
Robert McLain and James N. Weinstein
251 **Letters**
254 **Meetings of Interest for Spine Physicians and Surgeons**

APRIL

257 **Histology of the Alar and Transverse Ligaments**
P. Saldinger, J. Dvorak, B. A. Rahn, and S. M. Perren
262 **Ultrastructure of the Human Interspinous Ligament and Ligamentum Flavum: A Preliminary Study**
L.-H. Yahia, S. Garzon, H. Strykowski, and C.-H. Rivard
269 **T2-Ganglionectomy via Limited Costotransversectomy for Minor Causalgia**
Stephen L. Fedder
271 **The Behavior of the Unfused Lumbar Curve Following Selective Thoracic Fusion for Idiopathic Scoliosis**
Vicki Kalen and Matthew Conklin
275 **Results of a Locking-Hook Spinal Rod for Fractures of the Thoracic and Lumbar Spine**
S. D. Gertzbein, R. R. Jacobs, J. Stoll, C. Martin, P. Marks, M. Fazl, D. Rowed, and M. Schwartz
281 **Surgical Treatment of Hematogenous Vertebral Aspergillus Osteomyelitis**
Keith H. Bridwell, J. William Campbell, and Stephen J. Barenkamp
286 **Histomorphometric Analysis of Vertebral and Iliac Crest Bone Samples: A Correlated Study**
M. M. Alexiades, O. Boachie-Adjei, and V. J. Vigorita
289 **Quantitative Assessment of Full Range-of-Motion Isometric Lumbar Extension Strength**
James E. Graves, Michael L. Pollock, David M. Carpenter, Scott H. Leggett, Arthur Jones, Michael MacMillan, and Michael Fulton
295 **Axial Rotation in the Lumbar Spine and Gaping of the Zygapophyseal Joints**
K. D. McFadden and J. R. Taylor
300 **Adhesions of the Ventral Lumbar Dura: An Adjunct Source of Discogenic Pain?**
Wesley W. Parke and Ryo Watanabe
304 **Diagnosis of Lumbar Arachnoiditis by Magnetic Resonance Imaging**
Rick B. Delamarter, Jeffrey S. Ross, Thomas J. Masaryk, Michael T. Modic, and Henry H. Bohlman
311 **Fatigue Life Improvement of Nitrogen-Ion-Implanted Pedicle Screws**
Y. King Liu, Glen O. Njus, P. A. Bahr, and Po Geng
318 **Luque Instrumentation in Degenerative Conditions of the Lumbar Spine**
John P. Kostuik, Thomas J. Errico, and Thomas F. Gleason
322 **Simultaneous Combined Anterior and Posterior Fusion: An Independent Analysis of A Treatment for the Disabled Low-Back Pain Patient**
Jeffrey A. Kozak and John P. O'Brien
329 **Retrospective Analysis of Microsurgical and Standard Lumbar Discectomy**
David W. Andrews and Michael H. Lavyne
336 **Briefly Noted: Lumbosacral Metastasis of Intracranial Germinoma**
Takafumi Nakamura, Teiji Kato, Noburo Hashimoto, Yuichi Maeda, Takashi Ikeda, Harumichi Senda, and Katsumasa Takagi
338 **Briefly Noted: Sudden Death from Cord Compression Associated with Atlanto-Axial Instability in Rheumatoid Arthritis: A Case Report**
Michael J. Yaszemski and Thomas R. Shepler
342 **Letters**
344 **Meetings of Interest for Spine Physicians and Surgeons**

MAY
EUROPEAN EDITION

347 **Mobility of the Lower Lumbar Spine After Posterolateral Fusion Determined by Roentgen Stereophotogrammetric Analysis**
R. Johnsson, G. Selvik, B. Strömqvist, and G. Sundén

351 **Compression—Traction Radiography of Lumbar Segmental Instability**
Peter Kälebo, Raynald Kadziolka, and Leif Swärd

356 **Facet Joint Asymmetry and Protrusion of the Intervertebral Disc**
O. Hägg and A. Wallner

360 **Blood Loss, Operating Time, and Positioning of the Patient in Lumbar Disc Surgery**
O. Böstman, J. Hyrkäs, E. Hirvensalo, and E. Kallio

364 **An Open Controlled Assessment of Osteopathic Manipulation in Nonspecific Low-Back Pain**
Roderic S. MacDonald and C. M. Janine Bell

371 **The Relationship of Low-Back Pain to Pregnancy and Gynecologic Factors**
Hans-Olof Svensson, Gunnar B. J. Andersson, Anita Hagstad, and Per-Olof Jansson

376 **Anthropometric Characteristics, Passive Hip Flexion, and Spinal Mobility in Relation to Back Pain in Athletes**
Leif Swärd, Bengt Eriksson, and Lars Peterson

383 **Neuroimmunohistochemical Analysis of Peridiscal Nociceptive Neural Elements**
Yrjö T. Konttinen, Mats Grönblad, Ilkka Antti-Poika, Seppo Seitsalo, Seppo Santavirta, Mika Hukkanen, and Julia M. Polak

387 **Immunohistochemical Demonstration of Subclasses of Inflammatory Cells and Active, Collagen-Producing Fibroblasts in the Synovial Plicae of Lumbar Facet Joints**
Yrjö T. Konttinen, Mats Grönblad, Olli Korkala, Erkki Tolvanen, and Julia M. Polak

391 **The Effect of Facet Geometry on the Axial Torque-Rotation Response of Lumbar Motion Segments**
Abdul M. Ahmed, Neil A. Duncan, and David L. Burke

402 **Investigation of the Laminate Structure of Lumbar Disc Anulus Fibrosus**
Françoise Marchand and Abdul M. Ahmed

411 **Preliminary Evaluation of a Scheme for Grading the Gross Morphology of the Human Intervertebral Disc**
J. P. Thompson, R. H. Pearce, M. T. Schechter, M. E. Adams, I. K. Y. Tsang, and P. B. Bishop

416 **Importance of Compression Onset Rate for the Degree of Impairment of Impulse Propagation in Experimental Compression Injury of the Porcine Cauda Equina**
Kjell Olmarker, Sten Holm, and Björn Rydevik

420 **Pulmonary Function and Gas Exchange at Rest and Exercise in Adolescent Girls with Mild Idiopathic Scoliosis during Treatment with Boston Thoracic Brace**
Harald E. Refsum, Carl F. Naess-Andresen, and Johan E. Lange

424 **Harrington-Luque and Cotrel-Dubousset Instrumentation for Idiopathic Thoracic Scoliosis: A Postoperative Comparison Using Segmental Radiologic Analysis**
A. S. Wojcik, J. K. Webb, and R. G. Burwell

432 **Briefly Noted—Spinal Meningeal Cyst Concomitant with Lumbar Spondylolisthesis: A Case Report**
Sombat Rojviroj, Kitti Jirarattana-Phochai, Winai Sirichativapee, and Sukit Saengnipanthkul

434 **Briefly Noted—Leg Pain following Syringomyelia of Conus Medullaris**
Jan Vanneste and Martin Van Der Bent

437 **Meetings of Interest for Spine Physicians and Surgeons**

JUNE

439 **Tussive Presentation in Cervicomedullary Junction Malformations**
Lynn D. Kramer, George E. Locke, and Stephen C. Rasmus

442 **Posttraumatic Atlanto-Axial Subluxation and Myelopathy: Efficacy of Anterior Decompression**
Ronald Moskovich and H. Alan Crockard

448 **The Medical and Economic Impact of Closed Cervical Spine Dislocations**
Howard B. Cotler, Jerome M. Cotler, Mark E. Alden, Gary Sparks, and Charles A. Biggs

453 **Cervical Zygapophyseal Joint Pain Patterns I: A Study in Normal Volunteers**
Anthony Dwyer, Charles Aprill, and Nikolai Bogduk

458 **Cervical Zygapophyseal Joint Pain Patterns II: A Clinical Evaluation**
Charles Aprill, Anthony Dwyer, and Nikolai Bogduk

462 **MRI Diagnosis of Tuberculous Vertebral Osteomyelitis**
Gordon R. Bell, Kim L. Stearns, Peter M. Bonutti, and Francis R. Boumphrey

466 **Transient Neurologic Deficits Associated with Thoracic and Lumbar Spine Trauma Without Fracture or Dislocation**
Michael MacMillan and E. Shannon Stauffer

470 **A Biomechanical Investigation of Short Segment Spinal Fixation for Burst Fractures with Varying Degrees of Posterior Disruption**
Kenneth A. Mann, Dennis P. McGowan, Bruce E. Fredrickson, Mark Falahee, and Hansen A. Yuan

479 **Long-Term Lumbar Facet Joint Changes in Spinal Fracture Patients Treated with Harrington Rods**
Vance O. Gardner and Gordon W. D. Armstrong

485 **Surgical Treatment of Paraplegia Resulting from Vertebral Fractures in Senile Osteoporosis**
Jitsuhiko Shikata,Takao Yamamuro, Hirokazu Iida, Katsuji Shimizu, and Jyunsuke Yoshikawa

490 **Life Events and Psychological Disturbance in Patients with Low-Back Pain**
D. I. O. Craufurd, F. Creed, and M. I. V. Jayson

495 **Low-Back Pain: Factors of Value in Predicting Outcome**
J. Michael Lacroix, John Powell, Geoffrey J. Lloyd, Neville C. S. Doxey, G. Lance Mitson, and Charles F. Aldam

500 **Risk for Occupational Low-Back Injury after Lumbar Laminectomy for Degenerative Disc Disease**
James Ryan and Craig Zwerling

504 **Effect of Training Frequency and Specificity on Isometric Lumbar Extension Strength**
James E. Graves, Michael L. Pollock, Dan Foster, Scott H. Leggett, David M. Carpenter, Rosemaria Vuoso, and Arthur Jones

510 **Biofeedback in Back Muscle Strengthening**
Shihab S. Asfour, Tarek M. Khalil, Sherif M. Waly, Myron L. Goldberg, Renee S. Rosomoff, and Hubert L. Rosomoff

514 **Results of a Multicenter Trial Using an Intensive Active Exercise Program for the Treatment of Acute Soft Tissue and Back Injuries**
Robert I. Mitchell and Glenn M. Carmen

522 **Effect of Lumbar Traction on Stature**
R. S. Bridger, S. Ossey, and G. Fourie

525 **Comparison of High-Resolution Computed Tomography with Discography in the Evaluation of Lumbar Disc Herniations**
Pierre C. Milette, Jean Raymond, and Suzanne Fontaine

534 **Far Lateral Lumbar Disc Herniations and Associated Structural Abnormalities: An Evaluation in 60 Patients of the Comparative Value of CT, MRI, and Myelo-CT in Diagnosis and Management**
Nancy E. Epstein, Joseph A. Epstein, Robert Carras, and Roger A. Hyman

540 **A Prospective Study of Nerve Root Infiltration in the Diagnosis of Sciatica: A Comparison with Radiculography, Computed Tomography, and Operative Findings**
D. Stanley, M. I. McLaren, H. A. Euinton, and C. J. M. Getty

544 **Myeloscopic Study on Lumbar Spinal Canal Stenosis with Special Reference to Intermittent Claudication**
Yoshio Ooi, Fujio Mita, and Yukichi Satoh

550 **Effects of Sodium Hyaluronate on Peridural Fibrosis After Lumbar Laminotomy and Discectomy**
Matthew N. Songer, Luna Ghosh, and David L. Spencer

555 **Unilateral Spondylolysis Associated with Spina Bifida Occulta and Nerve Root Compression**
J. Kenneth Burkus

560 **The Contribution of the Dorsal and Ventral Roots of the Tibial Nerve in the Propagation of the Spinal Somatosensory Evoked Potential in Cats**
Thomas R. Highland, Leo Ottoni, Richard L. Lamont, and Harry G. Goshgarian

567 **The Effects of Freezing or Freeze-Drying on the Biomechanical Properties of the Canine Intervertebral Disc**
J. Flynn, M. J. Rudert, E. Olson, M. Baratz, and E. Hanley

571 **Lumbosacral Segmental Motion in Normal Individuals: Have We Been Measuring Instability Properly?**
Scott D. Boden and Sam W. Wiesel

577 **A Transducer for Measuring Motion within a Vertebra**
Robert Evenson, Dave Budney, Marc J. Moreau, and V. James Raso

581 **Lumbar Spinal Fusion: Assessment of Functional Stability with Magnetic Resonance Imaging**
Philipp Lang, Neil Chafetz, Harry K. Genant, and James M. Morris

589 **Briefly Noted: Upper Sacral Transverse Fracture: A Case Report**
Tadashi Yasuda, Jitsuhiko Shikata, Hiroaki Iida, and Takao Yamamuro

591 **Briefly Noted: Atlanto-Axial Dislocation in Association With Rheumatic Fever: A Case Report**
Thomas A. De Coster and Harry C. Cole

595 **Briefly Noted: Traumatic Atlanto-Occipital Instability: A Case Report With Follow-up and A New Diagnostic Technique**
Thomas DiBenedetto and Casey K. Lee

598 **Briefly Noted: Contralateral Pedical Stress Fracture: An Unusual Complication of Laminectomy**
D. Stanley and T. W. D. Smith

600 **Briefly Noted: Osteochondroma with Cervical Cord Compression in Hereditary Multiple Exostoses**
Scott A. Shapiro, Tareq Javid, and Tim Putty

602 **Briefly Noted: Late Fracture through an Interbody Lumbar Fusion: A Case Report**
Marc A. Linson

603 **Briefly Noted: Epidural Abscess Following Septic Arthritis in a Rheumatoid Patient: A Case Report**
Masami Akai, Tohgo Ohno, Souichiro Kamura, Hiroshi Kadoya, and Osamu Matsuzaki

605 **Briefly Noted: Solitary Bone Cyst of a Lumbar Vertebra: A Case Report and Review of the Literature**
Keiji Matsumoto, Saiki Fujii, Tomohiro Mochizuki, and Sinsuke Hukuda

607 **Briefly Noted: Odontoid Fracture Complicating Ankylosing Spondylitis: A Case Report and Review of the Literature**
Susan L. Kaplan, Carlos G. Tun, and Mehdi Sarkarati

610 **Briefly Noted: Intrasacral Memingocele in a Patient with Marfan Syndrome: Case Report**
Karen L. Harkens and Georges Y. El-Khoury

612 **Briefly Noted: Anterior Sacral Meningocele: Case Report and Review of the Literature**
LCDR Robert A. McGuire, Jr., LCDR James C. Metcalf, LCDR Glenn M. Amundson, and LCDR Gerald T. McGillicudy

615 **Meetings of Interest for Spine Physicians and Surgeons**

JULY
NORTH AMERICAN SPINE SOCIETY EDITION

617 **The North American Spine Society, Fourth Annual Meeting, Quebec City, Canada, June 29–July 2, 1989**

618 **Relationship Between Duration of Spinal Cord Ischemia and Postoperative Neurologic Deficits in Animals**
J. H. Owen, M. Naito, K. H. Bridwell, and D. M. Oakley

623 **Spinal Sensory and Motor Tract Activation After Epidural Electrical Stimulation in the Cat**
Gregory Niznik, Ensor E. Transfeldt, Fumio Shichijo, Tsutomu Ohshima, and Bruce Pomeranz

630 **Histopathologic Correlation of Magnetic Resonance Imaging Signal Patterns in a Spinal Cord Injury Model**
Samuel D. Weirich, Howard B. Cotler, Ponnada A. Narayana, John D. Hazle, Edward F. Jackson, Kevin J. Coupe, Craig L. McDonald, Lauren A. Langford, and John H. Harris, Jr.

639 **The Relationship of Torque, Velocity, and Power with Constant Resistive Load During Sagittal Trunk Movement**
Mohamad Parnianpour, Margareta Nordin, and Ali Sheikhzadeh

644 **Sagittal Plane Analysis in Idiopathic Scoliosis Patients Treated with Cotrel–Dubousset Instrumentation**
Keith H. Bridwell, Randall Betz, Ann M. Capelli, Gail Huss, and Charles Harvey

650 **Long Scoliosis Fusion to the Sacrum in Adults with Nonparalytic Scoliosis: An Improved Method**
Edward H. Saer, III, Robert B. Winter, and John E. Lonstein

654 **Orthotic Stabilization of Thoracolumbar Injuries: A Biomechanical Analysis of the Jewett Hyperextension Orthosis**
Avinash G. Patwardhan, Siping Li, Thomas Gavin, Mark Lorenz, Kevin P. Meade, and Michael Zindrick

662 **Herniated Intervertebral Discs Associated with Unstable Spinal Injuries**
Edward S. Pratt, Daniel A. Green, and Dan M. Spengler

667 **Evaluation of Surgical Treatment for Burst Fractures**
S. I. Esses, D. J. Botsford, and J. P. Kostuik

674 **High Levels of Inflammatory Phospholipase A_2 Activity in Lumbar Disc Herniations**
Joel S. Saal, Richard C. Franson, Robert Dobrow, Jeffrey A. Saal, Arthur H. White, and Noel Goldthwaite

679 **High Lumbar Disc Degeneration: Incidence and Etiology**
Ken Hsu, James Zucherman, William Shea, Jay Kaiser, Arthur White, Jerome Schofferman, and Cynthia Amelon

683 **The Natural History of Lumbar Intervertebral Disc Extrusions Treated Nonoperatively**
Jeffrey A. Saal, Joel S. Saal, and Richard J. Herzog

687 **Metabolic Bone Disease in Lumbar Pseudarthrosis**
Jerome Schofferman, Leslie Schofferman, James Zucherman, Ken Hsu, and Arthur White

690 **Lumbar Discography Followed by Computed Tomography: Refining the Diagnosis of Low-Back Pain**
Thomas N. Bernard, Jr.

708 **A Randomized Double-Blind Prospective Study of the Efficacy of Pulsed Electromagnetic Fields for Interbody Lumbar Fusions**
Vert Mooney

713 **A Multicenter Analysis of Percutaneous Discectomy**
Neil Kahanovitz, Kathleen Viola, Theodore Goldstein, and Edgar Dawson

716 **Intravenous Colchicine for Low-Back Pain: A Double-Blind Study**
James W. Simmons, William P. Harris, Christo W. Koulisis, and Sara J. Kimmich

718 **Presidential Address, North American Spine Society: Failure of the Pathology Model to Predict Back Pain**
Scott Haldeman

AUGUST
EUROPEAN EDITION

727 **The 1990 Volvo Award Competition for Research in Low-Back Pain**

728 **1990 Volvo Award in Clinical Sciences: Lumbar Spinal Pathology in Cadaveric Material in Relation to History of Back Pain, Occupation, and Physical Loading**
Tapio Videman, Markku Nurminen, and J. D. G. Troup

741 **1990 Volvo Award in Clinical Sciences: The Consistency and Accuracy of Roentgenograms for Measuring Sagittal Translation in the Lumbar Vertebral Motion Segment: An Experimental Model**
William O. Shaffer, Kevin F. Spratt, James Weinstein, Thomas R. Lehmann, and Vijay Goel

751 **1990 Volvo Award in Experimental Studies: The Dependence of Intervertebral Disc Mechanical Properties on Physiologic Conditions**
Tony S. Keller, Sten H. Holm, Tommy H. Hansson, and Dan M. Spengler

762 **1990 Volvo Award in Experimental Studies: Anulus Tears and Intervertebral Disc Degeneration: An Experimental Study Using an Animal Model**
O. L. Osti, B. Vernon-Roberts, and R. D. Fraser

768 **The Role of Spinal Flexibility in Back Pain Complaints within Industry: A Prospective Study**
Michele C. Battie, Stanley J. Bigos, Lloyd D. Fisher, Dan M. Spengler, Tommy H. Hansson, Alf L. Nachemson, and Mark D. Wortley

774 **The Loads on the Lumbar Spine during Work at an Assembly Line: The Risks for Fatigue Injuries of Vertebral Bodies**
Marianne Magnusson, Marianne Granqvist, Ragnar Jonson, Viveka Lindell, Ulf Lundberg, Leif Wallin, and Tommy Hansson

780 **Chronic Unilateral Low-Back Pain: Predictors of Outcome of Facet Joint Injections**
G. Lilius, A. Harilainen, E. M. Laasonen, and P. Myllynen

783 **Osteoporosis and Back Pain in the Elderly: A Controlled Epidemiologic and Radiographic Study**
Carl Zetterberg, Siv Mannius, Dan Mellstrom, Åke Rundgren, and Kurt Åstrand

787 **Comparison of Structure, Mechanical Properties, and Functions of Lumbar Spinal Ligaments**
D. W. L. Hukins, M. C. Kirby, T. A. Sikoryn, R. M. Aspden, and A. J. Cox

796 **Computer-Assisted Tomography of Scoliosis Operated with or without Harrington's Rod: Biomechanics Aspects of the Fusion**
A. Zagra, C. Lamartina, A. Pace, V. Ramondetta, and E. Vercellesi

803 **Factors Influencing the Result of Posterior Spinal Fusion in the Treatment of Adolescent Idiopathic Scoliosis**
John K. Dowell, John M. Powell, Peter J. Webb, and Timothy R. Morley

809 **The Operative Treatment of Progressive Early Onset Scoliosis: A Preliminary Report**
J. F. Patterson, J. K. Webb, and R. G. Burwell

816 **An Analysis of the Effect of the Zielke Operation on S-shaped Curves in Idiopathic Scoliosis: A Follow-up Study Revealing Some Skeletal and Soft Tissue Factors Involved in Curve Progression**
A. S. Wojcik, J. K. Webb, and R. G. Burwell

822 **Effects of Rib Elongation on the Spine: I. Distortion of the Vertebral Alignment in the Rabbit**
John Sevastik, Mamoun Agadir, and Bo Sevastik

826 **Effects of Rib Elongation on the Spine: II. Correction of Scoliosis in the Rabbit**
John Sevastik, Mamoun Agadir, and Bo Sevastik

830 **Maintenance of Cell Viability in Stored Bone**
Nicholas J. Treble, John C. Dorgan, and James A. Gallagher

833 **Briefly Noted: A Variant of Severe Deformation of the Thoracic Spine with Favorable Neurologic Outcome**
I. R. Voronovich, O. I. Dulub, V. N. Nikolayev, and J. I. Selkov

835 **Briefly Noted: Giant-Cell Tumor Involving a Lumbar Vertebra: Long-Term Follow-up after Radiotherapy**
E. DeGroof, R. Verdonk, M. Vercauteren, K. Schelstraete, H. Roels, and H. Claessens
839 **Letters**
841 **Meetings of Interest for Spine Physicians and Surgeons**
843 **Acknowledgment to Reviewers**

SEPTEMBER

SCOLIOSIS RESEARCH SOCIETY EDITION

845 **Scoliosis Research Society 24th Annual Meeting, Amsterdam, Holland, September 17–22, 1989**
846 **Relationship Between Duration of Spinal Cord Ischemia and Postoperative Neurologic Deficits in Animals**
J. H. Owen, M. Naito, K. H. Bridwell, and D. M. Oakley
852 **Relationship Among Level of Distraction, Evoked Potentials, Spinal Cord Ischemia and Integrity, and Clinical Status in Animals**
Jeffrey H. Owen, Masatoshi Naito, and Keith H. Bridwell
858 **Excitotoxins Can Produce Protein Degradation in the Spinal Cord**
Vance O. Gardner, Vincent J. Caiozzo, Susan K. Munden, and Richard J. Bridges
864 **Urologic Function After Experimental Cauda Equina Compression: Cystometrograms Versus Cortical-Evoked Potentials**
Rick B. Delamarter, Henry H. Bohlman, Donald Bodner, and Chris Biro
871 **Microcomputer Reconstruction for Analysis of Spinal Deformity and Lung Volume in Hypokyphotic Scoliosis**
James R. Malcolm, Gary G. Wind, Eric B. Allely, and Bruce E. Van Dam
874 **Cobb Angle Versus Spinous Process Angle in Adolescent Idiopathic Scoliosis: The Relationship of the Anterior and Posterior Deformities**
John E. Herzenberg, Nicholas A. Waanders, Robert F. Closkey, Albert B. Schultz, and Robert N. Hensinger
880 **Digital Radiography Can Reduce Scoliosis X-ray Exposure**
Thomas F. Kling, Jr., Mervyn J. Cohen, Richard E. Lindseth, and G. Paul DeRosa
886 **Results of Treatment of Idiopathic Scoliosis with the Charleston Bending Orthosis**
Dale J. Federico and Thomas S. Renshaw
888 **Surface Electrical Stimulation Versus Brace in Treatment of Idiopathic Scoliosis**
John W. Durham, Alan Moskowitz, and John Whitney
893 **Internal Forces and Moments in Transpedicular Spine Instrumentation: The Effect of Pedicle Screw Angle and Transfixation—The 4R-4Bar Linkage Concept**
William L. Carson, Roger C. Duffield, Marcia Arendt, Bobbie Jo Ridgely, and Robert W. Gaines, Jr.
902 **Influence of Bone Mineral Density on the Fixation of Thoracolumbar Implants: A Comparative Study of Transpedicular Screws, Laminar Hooks, and Spinous Process Wires**
Jeffrey D. Coe, Karen E. Warden, Michael A. Herzig, and Paul C. McAfee
908 **Effect of Spinal Construct Stiffness on Early Fusion Mass Incorporation: Experimental Study**
C. E. Johnston, II, R. B. Ashman, A. M. Baird, and R. N. Allard
913 **The Use of Fibrin Sealant to Reduce Blood Loss During Cotrel-Dubousset Instrumentation for Idiopathic Scoliosis**
S. J. Tredwell and B. Sawatzky
916 **Fusion Levels and Hook Patterns in Thoracic Scoliosis with Cotrel-Dubousset Instrumentation**
Harry L. Shufflebarger and Cynthia E. Clark
921 **Sagittal Plane Analysis in Idiopathic Scoliosis Patients Treated with Cotrel-Dubousset Instrumentation**
Keith H. Bridwell, Randall Betz, Ann M. Capelli, Gail Huss, and Charles Harvey
927 **Decompensation After Cotrel-Dubousset Instrumentation of Idiopathic Scoliosis**
J. P. Thompson, E. E. Transfeldt, D. S. Bradford, J. W. Ogilvie, and O. Boachie-Adjei

932 **Immediate Complications of Cotrel-Dubousset Instrumentation to the Sacro-Pelvis: A Clinical and Biomechanical Study**
Jon F. Camp, Robert Caudle, Richard D. Ashmun, and James Roach
942 **Surgical Treatment of Scoliosis in a Spinal Muscular Atrophy Population**
Donna P. Phillips, David P. Roye, Jr., Jean-Pierre C. Farcy, Arabella Leet, and Yvonne A. Shelton
946 **Combined Anterior and Posterior Fusion for Spinal Deformity in Myelomeningocele**
John V. Banta
953 **Delayed Anterior Decompression in Patients with Spinal Cord and Cauda Equina Injuries of the Thoracolumbar Spine**
Ensor E. Transfeldt, Drake White, David S. Bradford, and Brenda Roche
958 **Sagittal Index in Management of Thoracolumbar Burst Fractures**
Jean-Pierre C. Farcy, Mark Weidenbaum, and Steven D. Glassman
966 **Blood Flow Direction in the Lumbar Nerve Root**
Masatoshi Naito, Jeffrey H. Owen, Keith H. Bridwell, and Dennis M. Oakley
969 **Quantification of Leakage Pressures After Durotomy Repairs in the Canine**
James E. Cain, Jr., Howard G. Rosenthal, Michael J. Broom, Edward C. Jauch, Deborah A. Borek, and Rae R. Jacobs
971 **Facet Loads in the Canine Lumbar Spine Before and After Disc Alteration**
Richard D. Kahmann, Glenn R. Buttermann, Jack L. Lewis, and David S. Bradford
979 **Factors Affecting Fusion Rate in Adult Spondylolisthesis**
Sunny S. Kim, Francis Denis, John E. Lonstein, and Robert B. Winter
985 **Letters**
987 **Meetings of Interest for Spine Physicians and Surgeons**

OCTOBER

CERVICAL SPINE RESEARCH SOCIETY EDITION

989 **Cervical Spine Research Society, Seventeenth Annual Meeting, New Orleans, Louisiana, December 5–8, 1989**
990 **Ligamentous Laxity Across C0–C1–C2 Complex: Axial Torque–Rotation Characteristics Until Failure**
Vijay K. Goel, John M. Winterbottom, Kary R. Schulte, Han Chang, Lars G. Gilbertson, Arthur G. Pudgil, and Jong K. Gwon
997 **Occipito-Altantal Translation in Down's Syndrome**
Keith R. Gabriel, Dan E. Mason, and Paul Carango
1003 **Cervical Spinal Canal Plasticity in Children as Determined by the Vertebral Body Ratio Technique**
Murray D. Robinson, Bruce Northrup, and Robert Sabo
1006 **Cervical Muscle Myoelectric Response to Acute Experimental Sternocleidomastoid Pain**
J. A. Ashton-Miller, K. M. McGlashen, J. E. Herzenberg, and C. S. Stohler
1013 **Motor-Evoked Potentials in Patients with Cervical Spine Disorders**
Jiří Dvořák, Jorg Herdmann, Beatrice Janssen, Robert Theiler, and Dieter Grob
1017 **The Neurologic Workup in Patients with Cervical Spine Disorders**
J. Dvořák, B. Janssen, and D. Grob
1023 **Anterior Cervical Discectomy and Fusion**
David H. Clements and Patrick F. O'Leary
1026 **Surgical Management of Cervical Soft Disc Herniation: A Comparison Between the Anterior and Posterior Approach**
Harry N. Herkowitz, Lawrence T. Kurz, and David P. Overholt
1031 **Injury Biomechanics of the Human Cervical Column**
Narayan Yoganandan, Anthony Sances, Jr., Frank Pintar, Dennis J. Maiman, John Reinartz, Joseph F. Cusick, and Sanford J. Larson
1040 **Functional Stability of the Canine Cervical Spine After Injury: A Three-Month *In Vivo* Study**
H. Ulrich Buff, Manohar M. Panjabi, Charles M. Sonu, Joseph J. Crisco, Thomas R. Oxland, and Richard R. Pelker
1047 **The Injured Canine Cervical Spine After Six Months of Healing: An *In Vitro* Three-Dimensional Study**
Joseph J. Crisco, Manohar M. Panjabi, Edward Wang, Mark A. Price, and Richard R. Pelker

1053 **Prognosticating Study for Cervical Myelopathy Using Evoked Spinal Cord Potentials**
K. Shinomiya, A. Okamoto, H. Komori, T. Matsuoka, H. Yoshida, N. Muto, and K. Furuya
1058 **Gunshot Wounds to the Cervical Spine**
Paul C. Kupcha, Howard S. An, and Jerome M. Cotler
1064 **Evaluation of Current Extrication Orthoses in Immobilization of the Unstable Cervical Spine**
Robert A. McGuire, Gregory Degnan, and Glenn M. Amundson
1068 **Immediate Closed Reduction of Cervical Spine Dislocations Using Traction**
Andrew M. Star, A. Alexander Jones, Jerome M. Cotler, Richard A. Balderston, and Raj Sinha
1073 **Compressive Strength of Autologous and Allogenous Bone Grafts for Thoracolumbar and Cervical Spine Fusion**
R. H. Wittenberg, J. Moeller, M. Shea, A. A. White, III, and W. C. Hayes
1079 **Anterior Cervical Plate Fixation with the Titanium Hollow Screw Plate System: A Preliminary Report**
Paul B. Suh, John P. Kostuik, and Stephen I. Esses
1082 **Meetings of Interest for Spine Physicians and Surgeons**

NOVEMBER
JAPANESE EDITION

1085 **Complications of Lateral C1–2 Puncture Myelography**
Yoshiharu Katoh, Tatsuo Itoh, Haruo Tsuji, Hisao Matsui, Norikazu Hirano, and Hideaki Kitagawa
1088 **Clinical Value of Magnetic Resonance Imaging for Cervical Myelopathy**
Kensei Nagata, Kanichirou Kiyonaga, Teruaki Ohashi, Masashi Sagara, Shinpei Miyazaki, and Akio Inoue
1097 **Motion Analysis of the Cervical Spine in Athetoid Cerebral Palsy: Extension–Flexion Motion**
Sohei Ebara, Yuji Yamazaki, Takeo Harada, Noboru Hosono, Yoshiharu Morimoto, Li Tang, Yasuyuki Seguchi, and Keiro Ono
1104 **A Histopathologic Study of Spinal Cord Ischemia Using an Isohistogenic Rat Upper-Half-Body Transplantation Model**
Tanetaka Akizuki and Kiyonori Harii
1110 **Scoring System for the Preoperative Evaluation of Metastatic Spine Tumor Prognosis**
Yasuaki Tokuhashi, Hiromi Matsuzaki, Sadayoshi Toriyama, Hisashi Kawano, and Shunzo Ohsaka
1114 **Circumspinal Decompression for Thoracic Myelopathy Due to Combined Ossification of the Posterior Longitudinal Ligament and Ligamentum Flavum**
Katsuro Tomita, Norio Kawahara, Hisatoshi Baba, Yutaka Kikuchi, and Hitoshi Nishimura
1121 **Lateral Rhachotomy for Thoracic Spinal Lesions**
Kazuo Yonenobu, Feza Korkusuz, Noboru Hosono, Sohei Ebara, and Keiro Ono
1126 **Dynamic Analysis of the Harrington System Using a Spinal Simulator**
Minoru Kijima, Takashi Sakou, and Kenji Nakanishi
1131 **Identification of α-Motor Nerve Fiber Potentials in Lumbar Epidural Space and Its Clinical Significance**
Jinichi Watanabe and Hiromi Tanaka
1138 **The Role of the Iliolumbar Ligament in the Lumbosacral Junction**
I. Yamamoto, M. M. Panjabi, T. R. Oxland, and J. J. Crisco
1142 **Biomechanical Evaluation of Lumbar Spinal Stability After Graded Facetectomies**
Kuniyoshi Abumi, Manohar M. Panjabi, Kenneth M. Kramer, Joanne Duranceau, Thomas Oxland, and Joseph J. Crisco
1148 **Pathomechanism, Pathogenesis, and Results of Treatment in Cervical Spondylotic Myelopathy Caused by Dynamic Canal Stenosis**
Koji Fukui, Osamu Kataoka, Tomoya Sho, and Masatoshi Sumi
1153 **Intersegmental Spinal Flexibility with Lumbosacral Instrumentation: An *in Vitro* Biomechanical Investigation**
Takashi Asazuma, Ian A. F. Stokes, Morey S. Moreland, and Nobumasa Suzuki
1159 **Problems and Solutions of Pedicle Screw Plate Fixation of Lumbar Spine**
Hiromi Matsuzaki, Yasuaki Tokuhashi, Fujio Matsumoto, Masahiro Hoshino, Tetuya Kiuchi, and Sadayoshi Toriyama

1166 **Magnetic Resonance Imaging of Lumbar Disc Herniation: Comparison with Myelography**
Kazuhiko Hashimoto, Osamu Akahori, Kouzo Kitano, Kazuyuki Nakajima, Tokuro Higashihara, and Yukiko Kumasaka
1170 **Ultrasonic Level Diagnosis of Lumbar Disc Herniation**
Kunitaka Kamei, Kenzi Hanai, and Bobuo Matsui
1175 **The System and Procedures of Percutaneous Intradiscal Laser Nucleotomy**
Takumi Yonezawa, T. Onomura, R. Kosaka, Y. Miyaji, S. Tanaka, H. Watanabe, Y. Abe, K. Imachi, K. Atumi, T. Chinzei, K. Mabuchi, and I. Fujimasa
1186 **Postoperative Lumbar Spinal Instability Occurring or Progressing Secondary to Laminectomy**
Yasuo Iida, Osamu Kataoka, Tomoya Sho, Masatoshi Sumi, Tetsuji Hirose, Yasuo Bessho, and Daisuke Kobayashi
1190 **Unstable Lumbar Spine Without Hypermobility in Postlaminectomy Cases: Mechanism of Symptoms and Effect of Spinal Fusion With and Without Spinal Instrumentation**
Shigeo Sano, Satoshi Yokokura, Yoshirou Nagata, and Seong Zeon Young
1198 **Lumbar Trapezoid Plate for Lumbar Spondylolisthesis: A Clinical Study on Preoperative and Postoperative Instability**
Yoshihiko Kamioka and Hiroshi Yamamoto
1204 **Natural History of Degenerative Spondylolisthesis: Pathogenesis and Natural Course of the Slippage**
Shunji Matsunaga, Takashi Sakou, Yoshiyuki Morizono, Akitoshi Masuda, and A. Mehmet Demirtas
1211 **Long-Term Results of Anterior Interbody Fusion for Treatment of Degenerative Spondylolisthesis**
Kazuhisa Takahashi, Hiroshi Kitahara, Masatsune Yamagata, Masazumi Murakami, Keiichi Takata, Kazuhisa Miyamoto, Masaya Mimura, Yuzuru Akahashi, and Hideshige Moriya
1216 **Clinical Study on Stability of Combined Distraction and Compression Rod Instrumentation with Posterolateral Fusion for Unstable Degenerative Spondylolisthesis**
Masanori Fujiya, Michinori Saita, Kiyoshi Kaneda, and Kuniyoshi Abumi
1223 **Total Sacrectomy and Reconstruction for Huge Sacral Tumors**
Katsuro Tomita and Hiroyuki Tsuchiya
1228 **Briefly Noted: Juvenile Lumbar Herniated Nucleus Pulposus in Monozygotic Twins**
Hisao Matsui, Haruo Tsuji, and Nobuo Terahata
1231 **Briefly Noted: A Dorsally Displaced Free Fragment of Lumber Disc Herniation and Its Interesting Histologic Findings: A Case Report**
S. Hirabayashi, K. Kumano, T. Tsuiki, M. Eguchi, and S. Ikeda
1234 **Briefly Noted: An 80-Year-Old Patient with Thoracic Disc Herniation**
Haruki Nakayama, Hideki Hashimoto, Hitoshi Hase, Yasusuke Hirasawa, and Masakiyo Suzuki
1236 **Briefly Noted: Multiple Spinal Ossified Arachnoiditis: A Case Report**
Hideki Kitagawa, Masahiko Kanamori, Shinichiro Tatezaki, Tatsuo Itoh, and Haruo Tsuji
1239 **Letters**
1241 **Meetings of Interest for Spine Physicians and Surgeons**

DECEMBER

1243 **Editorial: Spine 1991**
Henry LaRocca
1244 **Cauda Equina Anatomy I: Intrathecal Nerve Root Organization**
Eric J. Wall, Mark S. Cohen, Jennifer B. Massie, Björn Rydevik, and Steven R. Garfin
1248 **Cauda Equina Anatomy II: Extrathecal Nerve Roots and Dorsal Root Ganglia**
Mark S. Cohen, Eric J. Wall, Richard A. Brown, Björn Rydevik, and Steven R. Garfin
1252 **Stimulation of Dorsal Root Ganglia and Degradation of Rabbit Annulus Fibrosus**
A. Pedrini-Mille, J. N. Weinstein, E. M. Found, C. B. Chung, and V. K. Goel
1257 **Changes in Spine Length During and After Seated Whole-Body Vibration**
A. Sullivan and S. M. McGill
1261 **Coexistence of Cervical and Lumbar Disc Disease**
B. Jacobs, B. Ghelman, and P. Marchisello

1265 **Pyogenic Spinal Sepsis in Adults**
Robert M. Lifeso

1272 **Osteoblastoma of the Spine: A Review of 75 Cases**
Osamu Nemoto, Richard P. Moser, Jr., Bruce E. Van Dam, Jun Aoki, and Frederick W. Gilkey

1281 **Scoliosis in Trisomy 18**
Michael D. Ries, Suzanne Ray, Robert B. Winter, and J. Richard Bowen

1285 **Numeric Analysis of the Load Capacity of the Human Spine Fitted with L-Rod Instrumentation**
Peter J. Weiler, John B. Medley, and Gregory M. McNeice

1294 **Nighttime Bracing for Adolescent Idiopathic Scoliosis with Charleston Bending Brace: Preliminary Report**
Charles T. Price, Donald S. Scott, Frederick E. Reed, Jr., and Max F. Riddick

1300 **Analysis of Sagittal Plane Instability of the Lumbar Spine *in Vivo***
P. J. Weiler, G. J. King, and S. D. Gertzbein

1307 **Prognostic Indicators for Acute Low-Back Pain**
Michael N. Goertz

1311 **Cumulative Load as a Risk Factor for Back Pain**
Shrawan Kumar

1317 **Secondary Prevention of Low-Back Pain: A Clinical Trial**
Milka Donchin, Ofra Woolf, Leon Kaplan, and Yizhar Floman

1321 **Improved Physical Performance Outcomes After Functional Restoration Treatment in Patients with Chronic Low-Back Pain: Early Versus Recent Training Results**
Sheri Kohles, Dennis Barnes, Robert J. Gatchel, and Tom G. Mayer

1325 **Spinal Rehabilitation by Work Tolerance Based on Objective Physical Capacity Assessment of Dysfunction: A Prospective Study with Control Subjects and Twelve-Month Review**
Barton L. Sachs, Jo-Anne F. David, Diane Olimpio, Andrew D. Scala, and Marc Lacroix

1333 **Analysis of Spinal and Muscular Activity During Flexion/Extension and Free Lifts**
S. Gracovetsky, M. Kary, S. Levy, R. Ben Said, I. Pitchen, and J. Hélie

1340 **A Prospective Study of Patients with Sciatica: A Comparison Between Conservatively Treated Patients and Patients Who Have Undergone Operation, Part I: Patient Characteristics and Differences Between Groups**
Matti Hurme, Hannu Alaranta, Sakari Einola, Björn Falck, Veikko Kallio, Lars-Runar Knuts, Kari Lahtela, and Tapio Törmä

1345 **A Prospective Study of Patients with Sciatica: A Comparison Between Conservatively Treated Patients and Patients Who Have Undergone Operation, Part II: Results After One Year Follow-Up**
Hannu Alaranta, Matti Hurme, Sakari Einola, Björn Falck, Veikko Kallio, Lars-Runar Knuts, Kari Lahtela, and Tapio Törmä

1350 **Lumbar Isthmic Spondylolisthesis in Children and Adolescents: Radiologic Evaluation and Results of Operative Treatment**
T. Sam Lindholm, Paolo Ragni, Mauno Ylikoski, and Mikko Poussa

1356 **Knodt Rod Distraction Instrumentation in Lumbosacral Arthrodesis**
Richard J. Nasca and Peter D. Littlefield

1360 **Briefly Noted: False Aneurysm of the Superior Gluteal Artery: A Complication of Iliac Crest Bone Grafting**
Frank P. Catinella, Giacomo A. De Laria, and Ronald L. De Wald

1362 **Briefly Noted: *Candida albicans* Osteomyelitis in a Vertebral Body Previously Infected with *Serratia marcescens***
Gary Ackerman and James C. Bayley

1363 **Briefly Noted: Sacral Carcinoma (Epithelioma) Cuniculatum: Case Report**
I. E. Goga, A. A. Haffejee, S. Govender, A. Lalbahadur, and B. Singh

1366 **Briefly Noted: Correlation Between Disc Height Narrowing and Low-Back Pain**
Vaughan M. Dabbs and Lisa G. Dabbs

1369 **Briefly Noted: Aspergillus Infection of the L3—L4 Disc Space in an Immunosuppressed Heart Transplant Patient**
C. Castelli, F. Benazzo, L. Minoli, P. Marone, R. Seghezzi, and C. Naccari Carlizzi

1374 **Briefly Noted: Atlantoaxial Rotary Subluxation in Ankylosing Spondylitis: A Case Report**
Marvin R. Leventhal, James Kimbro Maguire, Jr., and Claiborne A. Christian
1376 **Briefly Noted: Retroperitoneal Bleeding After Automated Percutaneous Discectomy: A Case Report**
Kevin Gill
1377 **Briefly Noted: Double Hemangioma of the Spine with Paraparesis: A Case Report**
Drew A. Bednar and Stephen I. Esses
1379 **Briefly Noted: Thoracic Disc Protrusion and Situs Inversus in Klippel—Feil Syndrome**
Saad Al-Rajeh, Upendra Mohan Chowdhary, Hussein Al-Freihi, and Fahd Al-Mohanna
1382 **Briefly Noted: Spinal Fusion in a Patient with Lumbosacral Agenesis**
Mark A. Rieger, John E. Hall, and David F. Dalury
1385 **Meetings of Interest for Spine Physicians and Surgeons**
1388 **Index**